



Dart Aerospace Ltd.
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D350-748-143TRN
Job Sheet 195159



Part No: D350-748-143TRN

Job Qty: 1 pcs

Part Name: Ss Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 5/15/19

Job Tracking No:

Due Date: 5/29/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV A IPP REV.A NEW ISSUE - LL 12.05.08

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	DAS Sign-off
					Setup	Run	Workcenter / Supplier			
100	Mori Seiki TL-40 - 1	1 pcs	5/29/19	5/29/19	7.06	2.81	Mori Seiki TL-40 - 1			662019-06-07
110	QC 2	1 pcs	5/29/19	5/29/19	0.00	0.00	QC 2 - 1			9-89
							QC 2 - 12			
							QC 2 - 14			
							QC 2 - 17			
							QC 2 - 19			
							QC 2 - 2			
							QC 2 - 20			
							QC 2 - 22			
							QC 2 - 23			
							QC 2 - 25			
							QC 2 - 32			
							QC 2 - 33			
							QC 2 - 35			
							QC 2 - 39			
							QC 2 - 4			
							QC 2 - 40			
							QC 2 - 44			
							QC 2 - 45			
							QC 2 - 48			
							QC 2 - 49			
							QC 2 - 50			
							QC 2 - 51			
							QC 2 - 52			
							QC 2 - 57			
							QC 2 - 62			
							QC 2 - 63			
							QC 2 - 8			
							QC 2 - 66			662019-06-07
							QC 2 - 64			9-89
							QC 2 - 65			

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				QC 2 - 5	
				QC 2 - 71	DAS
120 Mori Seiki TL-40 - 1 - B4B	1 pcs	5/29/19	0.00 2.81	Mori Seiki TL-40 - 1 - B4B	662019-06-10
130 QC 2	1 pcs	5/29/19	0.00 0.00	QC 2 - 1	9-89
				QC 2 - 12	
				QC 2 - 14	
				QC 2 - 17	
				QC 2 - 19	
				QC 2 - 2	
				QC 2 - 20	
				QC 2 - 22	
				QC 2 - 23	
				QC 2 - 25	
				QC 2 - 32	
				QC 2 - 33	
				QC 2 - 35	
				QC 2 - 39	
				QC 2 - 4	
				QC 2 - 40	
				QC 2 - 44	
				QC 2 - 45	
				QC 2 - 48	
				QC 2 - 49	
				QC 2 - 50	
				QC 2 - 51	
				QC 2 - 52	
				QC 2 - 57	
				QC 2 - 62	
				QC 2 - 63	
				QC 2 - 8	DAS
				QC 2 - 66	662019-06-10
				QC 2 - 64	9-89
				QC 2 - 65	
				QC 2 - 5	
				QC 2 - 71	
140 QC 8	1 pcs	5/29/19	0.00 0.00	QC 8 - 12	
				QC 8 - 14	
				QC 8 - 17	
				QC 8 - 20	
				QC 8 - 25	
				QC 8 - 3	
				QC 8 - 32	
				QC 8 - 33	
				QC 8 - 35	
				QC 8 - 39	
				QC 8 - 4	
				QC 8 - 44	
				QC 8 - 45	
				QC 8 - 49	
				QC 8 - 58	
				QC 8 - 8	
				QC 8 - 9	
				QC 8 - 68	
				QC 8 - 67	
				QC 8 - 1 (A)	
				QC 8 - 47	
				QC 8 - 40	
				QC 8 - 52	
				QC 8 - 23	

150 Crosstubes - 2 - B4B	1 pcs	5/29/19	0.00 0.97	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	
190 Packaging 3-1 - Stock - B4B	1 pcs	5/29/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
200 QC 21 - SA	1 pcs	5/29/19	0.00 0.00	QC 21 - SA - 21	 21 3-30 SEP 30 2019
				QC 21 - SA - 70	
				QC 21 - SA - 53	

Part Op 100 - (Mori Seiki CNC Lathe Large) 1-Cut tube on chop saw, leave extra mat'l for facing and install plugs 350-141 on both ends. 2-Face both sides of tube. 3- Turn program 02000 section on both side as per folio FB467. 4- Turn program 03000 section on both side as per folio FB467. 5- Blend transition lines only with belt sander 60 grit Folio rev: A

Dwg rev: A

110 - (QC2- Inspect parts off machine FAI/FAIB)

120 - (Mori Seiki CNC Lathe Large) 1- Turn program 04000 section on both side as per folio FB467. 2- Blend transition lines only with belt sander 60 grit 3- Scribe part # as per Dwg D350-748-143 Folio rev: A Dwg rev: A

130 - (QC2- Inspect parts off machine FAI/FAIB) PERFORME ULTRASONIC MEASUREMENT

140 - (QC8- Inspect parts - second check)

150 - (Crosstubes) 1-Grind machining marks

190 - (Identify as per dwg & Stock Location: _____) Identify and stock in kanban rack

200 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6021-125	Crosstube Material - 17-4Ph SS	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F151691

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Mori Selki TL-40 - 1	D6021-125	1	39	0
Part Specifications				
Specifications could not be found.				



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Container No: S188473



Part: D350-748-143TRN

Job No: 195159

Serial No/Batch: S188473

Revision: A

Inspector:

Exp Date:

Instructions:

Date: 06/07/19

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DART AEROSPACE LTD	Work Order:	195159
Description: Crosstube Assembly (AS350/355 High Fwd SS)	Part Number:	D350-748-143
Inspection Dwg: D350-748-143 Rev: A		Page 1 of 2

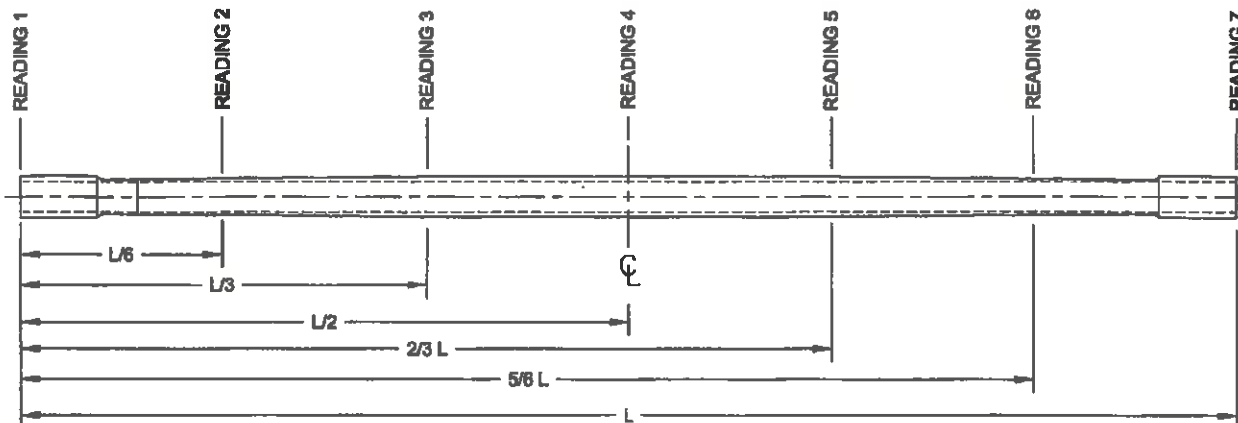
FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+/-0.005	2.241	✓		CNC-04	
	2.180	+0.005/-0.000	2.185	✓			
	2.180	+0.005/-0.000	2.185	✓			
	2.237	+0.005/-0.000	2.242	✓			
	2.272	+0.005/-0.000	2.277	✓			
	2.306	+0.005/-0.000	2.311	✓			
	2.339	+0.007/-0.000	2.346	✓			
	2.339	+0.007/-0.000	2.346	✓			
	0.062	+/-0.010	.062	✓		CNC-08	
	5.25	+/-0.060	5.262	✓		"	
	R0.063	+/-0.010	.063	✓		RG	
	R0.50	+/-0.030	.500	✓		"	
SIDE B	2.240	+/-0.005	2.241	✓		CNC-04	
	2.180	+0.005/-0.000	2.185	✓			
	2.180	+0.005/-0.000	2.185	✓			
	2.237	+0.005/-0.000	2.242	✓			
	2.272	+0.005/-0.000	2.277	✓			
	2.306	+0.005/-0.000	2.311	✓			
	2.339	+0.007/-0.000	2.346	✓			
	2.339	+0.007/-0.000	2.346	✓			
	0.062	+/-0.010	.062	✓		CNC-08	
	5.25	+/-0.060	2.245	✓		"	
	R0.063	+/-0.010	.063	✓		RG	
	R0.50	+/-0.030	.500	✓		"	
	112.27	+/-0.060	112.27	✓		Tape	

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DART AEROSPACE LTD	Work Order:	195159
Description: Crosstube Assembly (AS350/355 High Fwd SS)	Part Number:	D350-748-143
Inspection Dwg: D350-748-143 Rev: A		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.150	.146	.145	.145	.005	0.030"
READING 2 L= 18.71	.154	.155	.153	.149	.006	
READING 3 L= 37.42	.197	.195	.196	.203	.008	
READING 4 L= 56.14	.197	.203	.199	.197	.006	
READING 5 L= 74.85	.200	.193	.192	.201	.009	
READING 6 L= 93.56	.145	.143	.151	.156	.013	
READING 7 L= 112.27	.146	.145	.146	.143	.003	

Calibration Result

Actual Block Thickness: 100-200

Sitescan 250 Measured Thickness: 100-200

Measured by: ^{DAS} 66		Audited by: ^{DAS} 67 B3		Preliminary Approval:	
Date: ⁹⁻⁸⁹ 2019-06-10		Date: ⁹⁻⁸⁹ 19-06-12		Date:	
Rev	Date	Change		Revised by	Approved
A	15.09.09	New Issue (P/O D350-748-103)		KJ 	

Item	Qty	Part Number	Description
	-143		
	X	D350-748-143	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	1	D8021-125	CROSSTUBE
2	2	D3502-1	SUPPORT
3	2	D5123-7	CLAMP CUSHION
4	1	AETC-1032	INSERT
5	2	M821920-20 OR M821920-21-22	CLAMP (PER DART SPEC. M.M821920-20-21-22)
6	1	NAS1149C0363R	WASHER (OR AN600C10)
7	1	NAS1635-3-8	SCREW (OR M861958-63)
8	AR	PROSEAL 880 B-2	SEALANT, ANS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D8021-125 (17-4PH)
- 2) FINISH: FINISHED LENGTH AFTER TURNING = 112.270±0.08 (AFTER BENDING/TRIMMING = 110.27 REF)
- 3) FINISH: PRIME INSIDE AND OUTSIDE PER DART CSI 035 4.2
- 4) TOLERANCE: PER DART CSI 019 UNLESS OTHERWISE NOTED.
- 5) MIN. ALLOWABLE WALL THICKNESS ECCENTRICITY PER DART CSI 038 7.2
- 6) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 7) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 8) IDENTIFICATION: PER DART NUMBER D350-748-143 AND BATCH NUMBER ON INSIDE OF CUFF
- 9) WEIGHT: 30.46 lbs
- 10) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.260 HOLE.
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.065" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 12) TURNING
- 13) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 14) BENDING
- 15) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 16) MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 17) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).
- 18) ASSEMBLY
- 19) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 880 CLASS B-2 (OR ANS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 20) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS.

DEO ATTACHED

RELEASED

2015 MAR 18

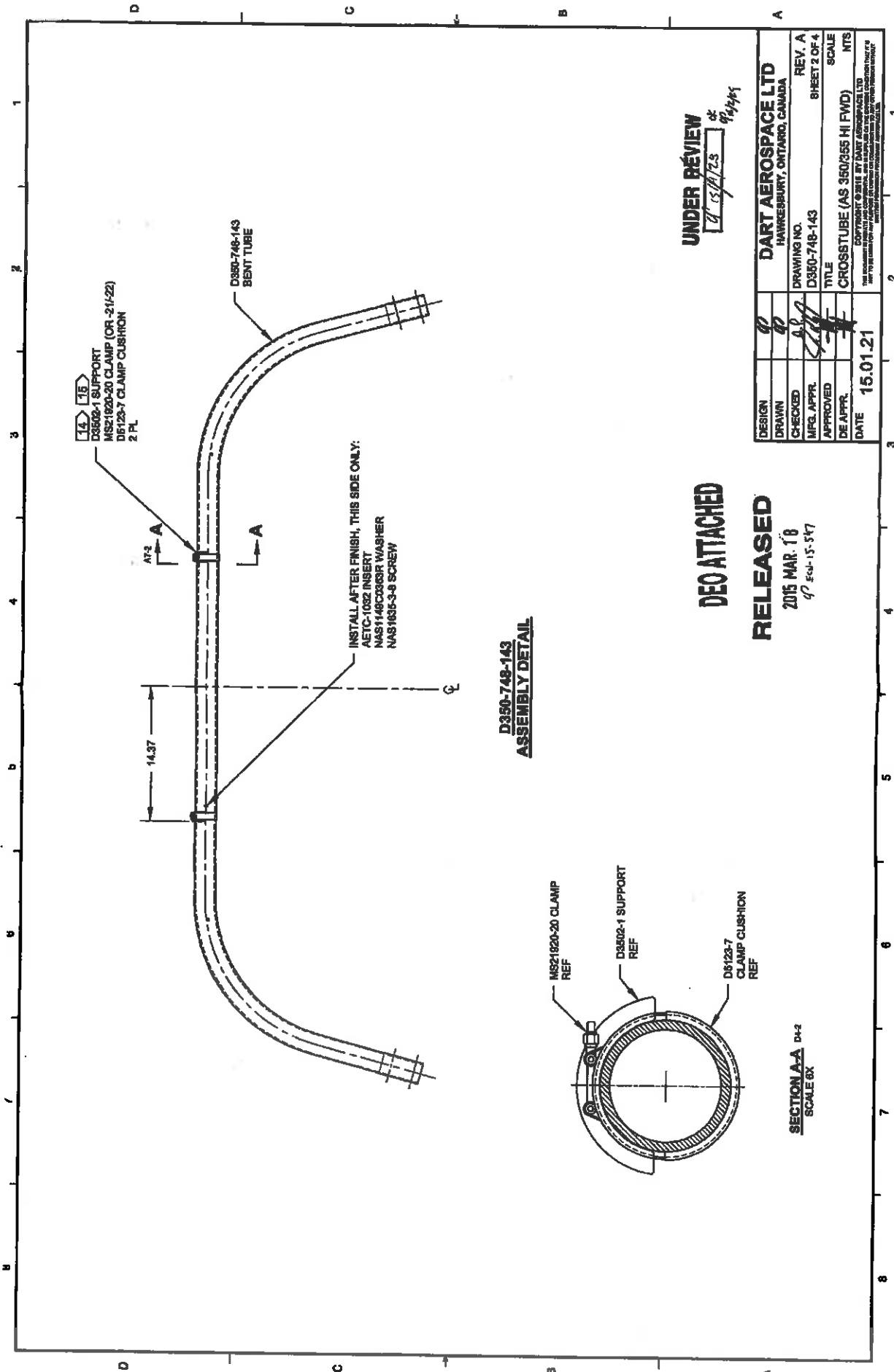
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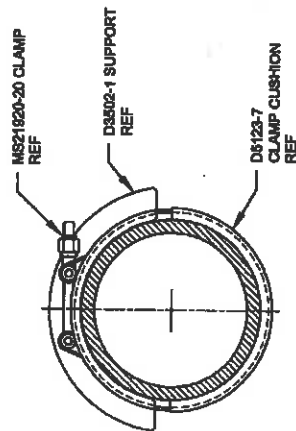
190515

UNDER REVIEW
15/11/24
OFF H. 561
9/16/24

A	NEW ISSUE	DESCRIPTION	CP	BY	DATE
DESIGN					
DRAWN					
CHECKED					
MFG. APPR.					
APPROVED					
DATE	15.01.21				
DART AEROSPACE LTD HAMPSHIRE, ONTARIO, CANADA					
DRAWING NO. D350-748-143					
REV. A					
SHEET 1 OF 4					
TITLE CROSSTUBE (AS 350/355 HI FWD)					
SCALE NTS					
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**D350-748-143
ASSEMBLY DETAIL**



SECTION A-A
D4-2
SCALE 6X

UNDER REVIEW

15/1/23
OK
9/4/24

DEO ATTACHED

RELEASED

2015 MAR 18
47 EQU-15-547

DESIGN	00	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	REV. A
DRAWN	00		SHEET 2 OF 4
CHECKED	00	DRAWING NO. D350-748-143	SCALE NTS
MFG. APPR.	00	TITLE CROSSTUBE (AS 350/355 HI FWD)	
APPROVED	00		
DE APPR.	00		
DATE	15.01.21		

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DRAWING NO. D350-748-143	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-143-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 90	CHECKED AS		MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>		DE APPR. <i>[Signature]</i>	
DATE 15.11.18	DATE 15.11.18		DATE 16.02.19	DATE FEB 19 2016		DATE 2016.02.19	

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

OR

POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
2016-02-26
EW 16-534 *[Signature]*

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